**PSYCHOLOGY 209H**

**BRAIN AND BEHAVIOR**

Fall 2021

M/W 10:20-11:40

Snyder C203

**Instructor:**

Laura Smale, Professor, Psychology Department and Neuroscience Program

Office hours: Via Zoom, Thursdays 3:00-4:00 or by appointment

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**Readings will include:**

1. “The Minds Machine, Foundations of Animal Behavior”, by NV Watson and SM Breedlove, 2021, 4th Edition, Sinauer Associates. Available at the Student Book Store
2. A range of PDFs and Web sites to be posted on D2L
3. Research publications that you will track down yourselves via the MSU library system

Extra: There is a companion Web site associated with your textbook for those of you interested in learning more: <http://www.biopsychology.com/news/index.php?book=MM>. It is a great way to find out about the newest research findings on topics in behavioral neuroscience that you may be especially interested in. [These readings are not required.]

**Objectives:**

I. The overarching goal is to provide you with a basic understanding of relationships between the nervous system and behavioral and mental states, healthy and disordered. This will involve : (1) A very general introduction to what behavioral neuroscience is all about, and then some basics of (2) the structures of the nervous system and a sampling of the functions associated with them, (3) how single cells within those structures function and form networks within and between those structures, and the chemistry of how cells communicate within those networks, (4) how hormones can influence our experience and our behavior and how these processes can differ across individual, (5) basic systems regulating hunger and feeding, sleep and rhythms, (6) emotion and aggression, (7) some of the ways that psychopathologies can arise from disorders of the brain and (8) how we form and retrieve memories, how we think and how we use language to communicate with others.

II. A second goal is to learn something about a range of controversial issues, including some that have involved social policies, that can be informed by a better understanding of the nervous system. This will involve reading, discussing, and thinking critically and assessing information that comes from a variety of sources and is written primarily for the general public.

III. A third goal is to gain a more direct, and in depth, appreciation of how research is done and how data can be analyzed and interpreted. Here, you will also be learning how to find, access and critically evaluate original research, and how to communicate what you find to others, e.g. your fellow students.

**SCHEDULE**

\*\* Indicates days devoted to discussion of special topics (described below)

## Indicates days for group presentations

September 1 Introductions

September 6 No class

September 8 Cells and structures-I

Chapter 1

September 13 Cells and structures-II

Chapter 1

September 15 \*\*Looking into a living brain: What can neuroimaging tell us, and how should and shouldn’t it be used?

Chapter 1 + Reading List

September 20 Neurophysiology

Chapter 2

September 22 The chemistry of behavior

Chapter 3

September 27 \*\* Drugs to adjust brain chemistry and behavior

Chapter 3 + Reading List

**September 29 EXAM 1** [Covers material from September 8 through September 27]

October 4 Special guest: Dr. Susan Kendell, MSU Biological Sciences Librarian, on how to identify and obtain the most reliable information

October 6 Hormones and sex: Basics

Chapter 8

October 11 \*\*Gender identity

Chapter 8 + Readings List

October 13 \*\*Sexual orientation

Chapter 8 + Reading List

October 18 Homeostasis

Chapter 9

October 20 Biological rhythms Dr. Nunez

Chapter 10

October 25 NO CLASS

October 27 The biology of Sleep

Chapter 10

**November 1 EXAM 2** [Covers material from October 4 through October 27]

November 3 \*\*Neuroscience, aggression, and culpability

Chapter 11 + reading list

Noveember 8 Psychopathology

Chapter 12

November 10 \*\*Psychopathology: Depression and psychosurgery

Chapter 12 + Reading List

November 15: ## Group presentations-I

1.The gut and the brain: Speaking to each other

2.The biology of friendliness: What do dogs have to offer?

November 17: ## Group presentations-II

3.Empathy in rodents: Lessons for humans?

4.Social dominance and the brains of mice

5.Covid and the brain: How can the damage occur?

November 22 \*\*Memory: The case of HM

Chapter 13 +Reading List

November 24: Open discussion of brain and behavior-issues, data and speculation

November 29 Memory: Beyond HM

Ch. 13

December 1 Attention and consciousness

Chapter 14

December 6 Language and hemispheric asymmetry

Chapter 15

**December 8 EXAM 3** [Covers material from November 3 through December 6]

**NOTE: THERE WILL BE NO FINAL EXAM**

**Review sessions will be held in room 221A Giltner prior to each of the 3 exams:**

1.September 28, Rm. 101 Giltner, 10:30

2.October 29, Rm. 101 Glitner, 10:30

3.December 3, Rm. 101 Giltner, 10:30

**D2L** Will be used for several things. You will find readings, study questions and additional miscellaneous but important information there. It is also where you will deposit assignments and receive feedback on them. **Finally, all exams will be held online, via D2L. Therefore, this course requires access to high-speed internet.** There is a tutorial where you can learn more about D2L on the banner on the right side of its opening page.

**ASSIGNMENTS AND GRADES**

Taken together, your work will be assessed via (1) three essay exams, (2) 6 commentaries on papers and Web sites and participating in discussions of these materials, (3) working in small groups to present and evaluate recent research on one of several topics in psychobiology, (4) attendance. More information about each of these is presented below.

**I. Exams (3 x 40 points = 120 points).**

There will be three exams in this course. Each will test your knowledge and comprehension of material covered in class and in assigned readings and Web sites. Questions will ask for short answers or essays (1/4-1 page). Study questions to help with preparation for exams will be provided at least 1 week before the exam. A make‑up exam (different from the primary one) will be granted in the case of a documented medical reason or a religious holiday.

**II. Commentaries (6 commentaries x 5 points each = 30 points, to be deposited in D2L dropboxes within 24 hours of the class period during which they will discussed)**

Seven class periods, indicated with **“\*\*” on the class schedule**, will be focused primarily on discussions of Web sites and/or published papers posted on D2L. These are specified in a file entitled “Reading Schedule” that is posted on D2L. Most of the topics involve controversies at the interface of societal issues and behavioral neuroscience. Some of the articles/web sites assigned for that day are written by people that have a strong point of view on a controversial issue in question, and some might have arguments/interpretations that may be flawed, (and some may simply not provide information that would be needed to assess the presentation of issues in them). Some of these readings were done **by** experts in the field and some **by** non-scientists, and some will be written **for** scientists, and some **for** non-scientists. **Prior to each of these sessions you will each need to read all of these and write 2 pages (total) of commentary on them; (regardless of whether there are 1,2,3, or 4 assigned readings for that day, your commentary still needs to be only 2 pages total, double spaced with ½ inch margins).** (You also need to read the corresponding chapter of the textbook before these sessions but you do not need include this in your commentary). Your commentaries should spell out some of the reactions that you have to the reading(s). It should not be a summary of them, but a thoughtful discussion of some of your reactions. For example, did the author write a good, thoughtful, article, and **why do you feel that way**? Did it change your opinion about the issue, and **why**? Do you see problems with what the author is saying, flaws in the reasoning, or limitations of some other sort, etc… It needs to be clear from the commentary that you have done the readings but it should not summarize them. **You can earn 5 points for each of six of the commentaries.** More specifically you will be given 5 points if it is well written and clear from the commentary that you have put some genuine thought into the issue, 3-4 points if the writing and reasoning are less clear, 1-2 points if it is carelessly written and it is not clear from the commentary that you have read all of the material that was assigned. If there is no commentary then no points will be given. **NOTE: IN ORDER TO GET CREDIT FOR THE COMMENTARY YOU MUST ATTEND THE CORRESPONDING CLASS DURING WHICH WE WILL DISCUSS THE ISSUES**.

There will be 7 opportunities to submit your commentaries and attend the associated discussion period. The one on which you receive the fewest points will be automatically dropped from your score, which will then be based on the other 6. There is no way to make up credit for a commentary, as the assignment requires attendance at the associated discussion period but if you have been unable to attend one of these class periods (e.g. if you have been ill) we will simply base the grade on the other 6.

Note: On the days that we discuss these readings (indicated by the \*\* on the syllabus) you will be put in groups (4-6 students/group) to go over issues that you have raised in your commentaries; you may be presented with some other questions to address in these discussions as well. The class will then reconvene as a whole and we will have a general class discussion during which the different groups present their positions and the reasoning behind them.

**III. Presentation (1 x 27 points)**

Each of you will work in a group of 4-5 students to develop and give a presentation on one of 5 issues indicated on the schedule “##”. These involve recent developments in behavioral neuroscience, such as how Covid can affect the nervous system. These are issues that are not covered in detail in the textbook. WEB sites that provide some information on the topic can be found on D2L. Your job is to delve into the topic much more deeply, find readings that describe/discuss research that has been done on the issues, and discuss what has been written about the issue for the general public. You will work with other members of your group to integrate what you have leaned and give a 25 minute presentation to the rest of the class. **MORE DETAILS OF THIS ASSIGNMENT CAN BE FOUND ON D2L.**

**IV. Participation and attendance (13 points)**

You can earn 1 point for attendance on each of the following 13 class periods: September 8, 13, 20, 22, October 4, 6, 18, 20, 27, November 8, 29 and December 1 and 6. [These are class periods that do not include the ones dedicated to group discussions or group presentations or the day before thanksgiving, and they do not include exam days.]

**Overall Grade**

You will have an opportunity to earn **a total of 200 points** in this course:

120 Exams (3 exams x 40 points)

40 Commentaries (6 commentaries x 5 points each)

27 Presentations (1 total)

13 Attendance/participation

Final course grades will be determined according to a standard grading scale: >90% total points=4.0, 85-89%=3.5, 80-84%=3.0, 75-79%=2.5, 70-74%=2.0, 65-69%=1.5, 60-64%=1.0 and <60%=0.

**SOME OTHER ISSUES**

**General comments**

I am here to help you learn and am very happy to discuss with you a host of issues related to brain and behavior, and to behavioral biology more generally. I would also like to help anyone that is having difficulties with the class and might like general advice about how to study or write more effectively. So, please let me know if you would like to meet to talk.

**Covid-19-MSU guidelines**

As of August 5, masks are required indoors on campus for all individuals. Regulations that went into place August 5 also require COVID-19 vaccination for all students, faculty and staff by Aug. 31. “That means being either fully vaccinated or having at least one dose and on your way to full vaccination.” If you have a medical condition that may prevent you from safely wearing a face covering, you should contact [MSU’s Resource Center for Persons with Disabilities](https://www.rcpd.msu.edu/) to begin the accommodation process.

**Honor and ethics**

“The Spartan Code of Honor” is a wonderful item that MSU students have written for each other that you may have all seen, but I’d like to remind you of it: “As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do.” You may learn more here: <http://splife.studentlife.msu.edu/spartan-code-of-honor-academic-pledge>

**Limits to confidentiality**

You should be aware that University employees, including instructors, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues based on external legal obligations, or that relate to the health and safety of MSU community members and others. As the instructor, I must report the following information to other University offices if you share it with me:

* Suspected child abuse/neglect, even if this maltreatment happened when you were a child
* Allegations of sexual assault or sexual harassment when they involve MSU students, faculty, or staff
* Credible threats of harm to oneself or to others

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual or not.

**Observing a major religious holiday**

You may make up course work missed in order to observe a major religious holiday if you make arrangements one week in advance.

**Accommodations for Students with Disabilities**

Accommodations for Students with Disabilities:   Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at <https://www.rcpd.msu.edu/>

Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to me at the start of the term and/or**two weeks prior to the accommodation date.**